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JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY

DECEMBER 1953

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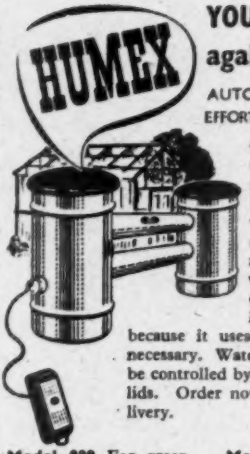

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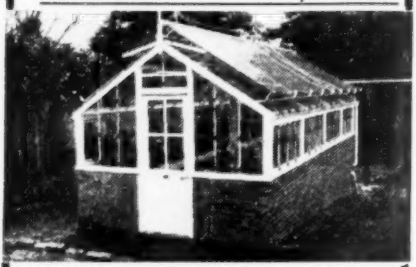

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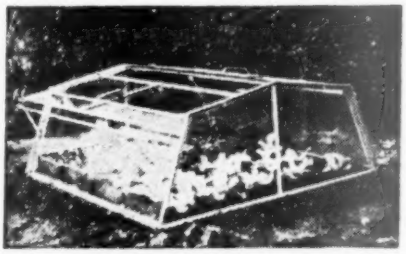

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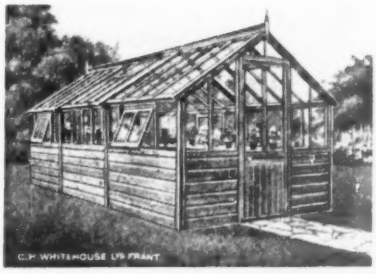

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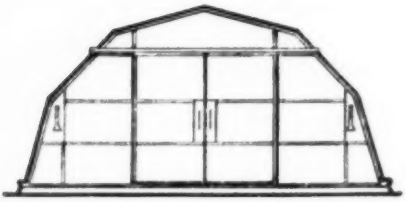

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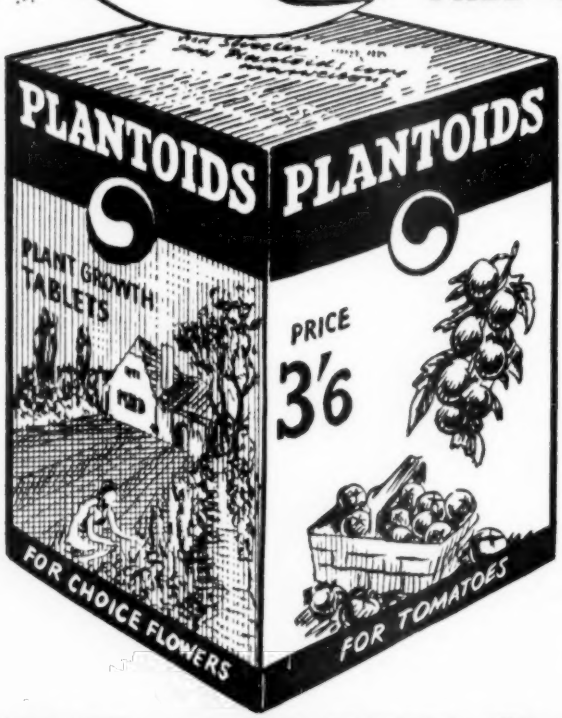

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JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY

VOL. LXXVIII PART TWELVE

December 1953

THE SECRETARY'S PAGE

ANNOUNCEMENTS—DECEMBER AND JANUARY

Shows

TUESDAY, December 1 12 NOON to 6 P.M. WEDNESDAY, December 2 10 A.M. to 5 P.M.	Fortnightly Show. Late Apple and Pear Competition.
TUESDAY, January 19, 1954 12 NOON to 6 P.M. WEDNESDAY, January 20 10 A.M. to 5 P.M.	Fortnightly Show.

Lectures

TUESDAY, December 1, at 3 P.M. "Choice Pears" by MR. T. E. TOMALIN.
TUESDAY, January 19, 1954, at 3 P.M. "Horticultural Education and Training" by MR. D. SKILBECK, M.A.

A complete programme of lectures has been arranged for 1954 and details will be announced each month in the JOURNAL.

Committee Meetings on January 5, 1954—If necessary the following Committees will meet on Tuesday, January 5, 1954, to consider novelties :

Fruit and Vegetable Committee.
Orchid Committee.
Joint Chrysanthemum Committee.

Anyone wishing to submit a novelty to one of these Committees on January 5 must inform the Secretary before December 31, 1953, so that the necessary arrangements may be made.

Annual General Meeting—The Annual General Meeting to receive the Report of the Council for 1953 and a statement of accounts for that year will be held on Tuesday, February 16, at 3 P.M. There will also be a show on that and the following day.

Examinations in 1953—At the Examination for the Teachers' Diploma in School Gardening, which is intended only for the professional teacher giving instruction in school gardening, twenty-six candidates entered for the Intermediate Examination, and five of them satisfied the Examiners that they should be allowed to proceed to the Final Examination in due course. For the Final Examination there were seventeen candidates and the following eleven of them obtained the Diploma:—

Mr. W. A. Chisholm
Mr. S. M. Garlick
Mr. D. Knowles
Mr. A. H. Mallinson
Mr. R. W. Marsh
Miss D. M. Nash
Mr. W. S. Pearson
Mr. J. Ryding
Mr. G. E. Spencer
Mr. H. H. Weaver
Mr. E. V. Wray

The Examination for the National Certificate in Elementary Horticulture, which includes both written and practical tests, was held at thirteen County Institutes. In all there were 164 candidates and 130 of them were successful, including eleven who passed "with credit."

Examinations in 1954—Candidates wishing to enter for the Society's Examinations in Horticulture in 1954 are reminded that the closing dates for the receipt of entry forms are as follows:—

General Examination in Horticulture, and General Examination in Horticulture for Juniors—Monday, January 11, 1954.
National Diploma in Horticulture—Intermediate and Final Examinations, and N.D.H. Honours—February 1, 1954.
Teachers' Diploma in School Gardening—Intermediate and Final Examinations, February 1, 1954.

Back Numbers of Journals—The Society keeps a stock of back numbers of the JOURNAL from which it is able generally to supply the needs of Fellows who require particular copies. At present the stock of the JOURNAL for July, 1953, is exhausted, and if any Fellow has a copy for which he has no further use, the Society would be glad to receive it and to refund the postage.

Publications—The attention of Fellows is drawn to the leaflet and order form for Publications inserted in the November issue of the JOURNAL.

Year Books—The price of the four year books published by the Society has been reduced to 10*s.* each for the current issues. These are now available and may be obtained on application to the Secretary. Postage and packing 9*d.* It is hoped that this reduction in price will enable an increased number of Fellows to obtain these books which contain much material of permanent value and interest. This year *The*

Rhododendron Year Book also includes material on Camellias and has been renamed *The Rhododendron and Camellia Year Book*. It contains a frontispiece in colour showing the late Lord Aberconway, President of the Society, among his Rhododendrons in the garden at Bodnant and an appreciation of his work in the raising of hybrid Rhododendrons.

Curtis's Botanical Magazine—Part IV of Volume 169 has been published. This Volume, which is now complete, is dedicated to Miss Lilian Snelling, Botanical Artist, and contains a portrait of her. Part IV contains a double plate of the fine *Paeonia lutea* var. *Ludlowii*, together with the following plants: *Allium acuminatum*, *Ceratostigma plumbaginoides*, *Cirsium rivulare* var. *atropurpureum*, *Cytisus Ingrami*, *Geum coccineum*, *Lilium nanum* var. *flavidum*, *Narcissus Pseudo-Narcissus*, *Phygelius aequalis*, *Rhododendron Beanianum*, *Veltheimia capensis*.

In order to assist new subscribers to obtain a complete set of the volumes already published in the new series the following special offer is made. To a new subscriber agreeing to take not fewer than two future volumes the complete set of five volumes already published is offered at a price of £10 0*s*. 0*d*. Previous subscribers to the new series may make up their sets at the cost of £2 0*s*. 0*d*. per volume instead of £4 0*s*. 0*d*. if the order is accompanied by a subscription to Volume 170.

The Amateur's Shrub Garden, by A. Osborn. A new and revised edition of this pamphlet is now available, price 1*s*., postage and packing 2*d*.

NOTES FROM WISLEY

At Wisley from time to time we are fortunate in receiving gifts which in some cases serve to make fairly comprehensive a certain collection of plants which formerly were represented only poorly.

One of the most generous gifts of recent years is that which arrived at Wisley in February 1949 from the British Orchid Growers' Association and which is to be found in the Stove and Orchid House. The aim of this collection of Orchids is to demonstrate to Fellows a small range of species from which the more flamboyant hybrids have been derived and to provide instruction for students in the elements of Orchid growing. It should be realized at the onset that the amount of glass-house space available at Wisley allows for no more than two types of growing conditions, warm and cool. At the stoke-hole end of the house we have the warm section while in the middle is the cool. In these days of shortage of fuel and high cost of fuel it is perhaps to the cool section that the amateur grower looks; for here may be found Orchids which will grow at temperatures of 50°–55° F. and which will not object too strongly if, by ill chance, the temperature falls to 45° F. or even to 40° F. for short periods.

Before considering the different types of Orchid to be seen at Wisley a word or two about composts and cultivation may not be out of place.

The basis of an Orchid compost is Sphagnum Moss and Osmunda fibre with the addition, according to the particular genus, of such items as turf fibre, charcoal, bone meal, brick dust, hoof and horn meal, sand, cow dung and leaf mould. Sphagnum Moss is used because of its excellent facility for absorbing water like a sponge. Osmunda fibre provides a medium which allows air and water to get to the roots and which has sufficient acidity. It is derived from the roots of either *Osmunda cinnamomea* or *O. Claytoniana* and usually is imported into this country. The roots of *O. regalis*, the Royal Fern, which thrives so well in these Gardens, can also be used, but growing as this plant does in bog conditions the root fibres may be sour and from the commercial viewpoint it cannot be procured in sufficiently large quantities as can the fibre of the other species.

The compost is mixed in varying proportions according to the genus and potting usually is carried out just as the new roots start to form. The great aim is to ensure that the plant is very firmly potted and to this end one uses a potting stick to push the compost round the roots. The stick is manipulated on the lever principle the compost being pushed inwards from the rim of the pot. Other points of interest in Orchid cultivation are shading which usually is provided by blinds but which at Wisley is given by painting the outside of the glass for the summer months, and damping which aims to provide the conditions that are experienced normally in the native habitat where at certain seasons and times of day vapour rises from the damp ground. Watering, which is the most baffling part of Orchid growing to many cultivators, when done should be well done. There are no hard-and-fast rules except to give water when by observation of the conditions and of the nature of the plants it appears that they need water.

Considering first those plants to be found growing in the cooler middle section we notice the Coelogynes. This genus contains some species which are grown easily either in pans or as epiphytes attached to a section of a Tree Fern hanging from the rafters. The species *C. cristata*, distributed in Nepal and the Eastern Himalayas, shows, as might be expected from a plant with so wide a range, considerable variation in colour; the type has drooping arched racemes of large white flowers with a large yellow blotch in the centre while the form *Lemoniana* has the lip stained delicate lemon in contrast to the type which has a white lip. *C. Mooreana* introduced by Messrs. Sander & Sons in 1904 from Annam is similar in colour to *C. cristata* but the raceme is of more upright growth and the flowers of firmer texture and capable of remaining fresh much longer. Also introduced from Annam in 1904 as a result of the same expedition by MR. W. MICHOLITZ and which first flowered in SIR TREVOR LAWRENCE'S Burford garden and so named after him is *C. Lawrenceana* with large sepals of greenish yellow and with a brown marked white lip. Another introduction by the same firm and collector is *C. Swaniana* which hails from the Philippine Islands and is not of such striking colour as the former species.

Long popular with the amateur grower and the hybridist are the

Cypripediums of which there are some ninety to a hundred species mostly native to the Northern hemisphere. This genus and its allies differ from the other Orchids in the structure of the flower. Usually Orchids have one perfect stamen and two abortive ones. Cypripediums, on the other hand, have two fertile lateral stamens; the anterior one, which is fertile in other Orchids, being represented by a singular shield-like plate. Both the Latin name and the English name of Lady's Slipper refer to the large inflated pouch which is formed by that petal which is known as the labellum.

In the Cypripedium group are four genera *Cypripedium*, *Paphiopedilum*, *Phragmipedilum* and *Selenipedium*. It is the genus *Paphiopedilum* which has provided the greatest number of plants, both species and hybrids, for the greenhouse. The species have been collected in the Old World from Ceylon and India in the West to the Philippines and Hong Kong in the East. The foliage in this genus is leathery and usually persists for more than one season. *P. insigne* is a very valuable species and one with a very vigorous constitution which it has passed on to its many hybrids. A typical flower has dorsal sepals of yellowish green blotched and streaked with reddish brown while the upper sepal is whitish and the lip of tawny gold. The form 'Sanderae' is primrose yellow with a broad white area at the apex and a few brown dots on the dorsal sepal. The form 'Harefield Hall,' of exceptional size, has the same sepal margined with white, and spotted with chocolate. All these normally flower during the winter but the closely related *P. Charlesworthii* produces white and yellow flowers in late summer.

Leaving the Old World species we turn to those of the New and to the Tropical American genus *Lycaste*. All the species of this genus are to be found at fairly high altitudes from Peru to Mexico and thus will stand a minimum temperature on winter nights of 50° F. The Mexican *L. aromatica* has fragrant yellow flowers 1½ inch across and the closely related Guatemalan *L. cruenta* has sepals of greenish yellow, petals of orange and lip spotted deep blood red. Another from this latter country is *L. lasioglossa* which was first imported in 1871 by Messrs. Veitch; the sepals are of dull cinnamon-brown, the petals of golden yellow with the hairy lip purple-speckled. *Maxillaria grandiflora* with white petals and sepals and with the lip streaked with yellow and flushed crimson within is another native of Central America.

Moving further south to Peru, Brazil, Guiana and Venezuela we find *Zygopetalum* and the closely related genera *Warscewiczella*, *Bollea* and *Promenaea*. *Zygopetalum Burtii*, also known as *Huntleya Burtii* and figured in the *Botanical Magazine* as *Batemannia Burtii*, has striking brown, yellow-spotted sepals and petals with purple streaking at the base while the lip is white with purplish red mouth. Both the sepals and petals of the autumn- and winter-flowering *Zygopetalum Mackaii* are a light yellow-green blotched with purplish brown; the blade-shaped lip is much expanded and the violet-purple spots and streaks on the white background often coalesce to form radiating lines.

The species of *Oncidium* which originate from Tropical America

and which are to be seen in the house include the autumn- and winter-flowering *O. incurvum*, *varicosum* 'Rogersii' and *splendidum* and the spring-flowering *O. curtum*. *O. incurvum* has fragrant white flowers while the others are coloured in some shade of yellow. *Odontoglossum* which has close affinities with *Oncidium* is represented by *O. grande* which, originating from Guatemala, has flowers of rich glossy orange-yellow banded and blotched bright chestnut brown, as well as by the white fragrant spring-flowering *pulchellum* and the white flushed rose May-flowering *citrosmum*. Also to be seen in this section of the house is a collection of hybrid Cymbidiums among which are included the varieties 'Bodmin Moor,' 'Erica Sander,' 'Chariot' and 'Sunrise.'

Moving into the warm section we notice first some of the *Paphiopedilums* which being natives of the warmer parts of the East require more heat and moisture than do those species mentioned earlier. *P. Spicerianum* hails from Assam; the white upper sepal has a purple line, the other sepals and petals are green, whilst the lip is brown. The leaves of *P. barbatum* are curiously blotched and spotted with dark green. This is a spring-flowering species whose white dorsal sepals and petals are flushed and striped with purple. *P.* × 'Leeanum' is a naturally occurring hybrid found in Assam and *P.* 'Harrisianum' an artificial hybrid between *P. barbatum* and *P. villosum*; both are worthy of note. The latter is of considerable standing having received the First Class Certificate on February 16, 1868, when shown by MR. VEITCH.

The Tropical American Cattleyas also appreciate these warmer conditions and we have observed *C. aurantiaca* of bright orange colour, *C. labiata* and *C. Mossiae* of deep rose and *C. Skinneri* and *C. Bowringiana* of rosy purple. The closely allied genus *Laelia* is represented by *L. rubescens*, sometimes called *L. acuminata*, which is a variable plant giving flowers of lilac-mauve or white and *L. Gouldiana* with sepals and petals of crimson red. There are also examples of hybrids between these two genera and *Brassavola*.

The Old World genus *Dendrobium* is well represented in the collection and its flowers brighten the house from November to April. It will be noted that at certain times of the year these plants are to be found in the cool section of the house and at others in the warm section. This is explained by the fact that the pseudobulbs must be exposed to the autumn sun if they are to mature. With the arrival of winter they are removed to warmer conditions where they flower. *D. nobile* produces fragrant rose-tipped white flowers while others to be noted include *D. chrysotoxum*, 'Merlin,' 'Montrose' and 'Gatton Monarch.'

Space does not permit of further discussion of the small Orchid collection but Fellows will find that at any time of the year there usually is to be seen in the Orchid House some flowering specimen which illustrates the great range of form and colour of these plants which to most people are intensely beautiful and fascinating, but to some are a little ugly and vulgar.

THE BAYFORDBURY CORRIDORS

J. Newell

THE plant corridors at Bayfordbury link together the glasshouses which for experimental purposes are arranged in two separate blocks. In one block the houses run from north to south and are connected together at the north end to form a corridor. The second block of houses run east to west and are connected together at the west end forming a second corridor. These corridors, each 170 feet long, meet at a centrally placed potting shed. This arrangement allows all cultural operations and moving of plants from any one position to any other in the glasshouse blocks to be carried out under cover.

The corridors are 12 feet 6 inches high and 12 feet wide. They have a central path of alternating metal grids and stone slabs which cover the heating ducts. The borders on either side of the paths are 3 feet wide. They have been planted with a permanent collection of tender climbers, shrubby plants and with bulbs, ferns and foliage plants to cover the ground (Figs. 135 and 136).

Low pressure steam is used for heating which coupled to motorised valves, gives accurate night temperature control. The cool west corridor is kept at 45° F. and the warm east one at 60° F. Thus we can provide a combination of conditions giving different orientations and different temperatures which, together with soil variations, allow us to meet, with fair accuracy, the requirements of the many plants we grow. The structures themselves are built of aluminium alloy on walls only 2 feet high and are glazed with 4 feet × 2 feet glass which allows the maximum of light to enter from all sides right down to floor level. I think we owe to this factor more than to any other the success we have had in establishing so well the collection of permanent indoor plants at Bayfordbury.

There are many advantages to be gained from growing plants in glasshouse borders rather than in pots. With very few exceptions plants grow and flower more freely when planted out; they need less attention and what is most important they can be allowed to grow naturally. The charm of many plants—probably most plants—is lost when grown under the artificial conditions and restriction of a flower-pot. Consider, for instance, *Abutilon megapotamicum*, grown in a pot its habit is stiff, its growth short and stunted, its lovely flowers few in number. But planted out it grows gracefully, 12 feet tall and is covered almost all the year round with thousands of flowers which are allowed to show themselves, as they should, hanging naturally from the roof. The *Solanums*, *Bougainvillaeas*, *Plumbagos* and many other plants too are glorious when planted out but comparative failures in a flower-pot.

However, there are a few plants which, under our conditions, have so far refused to flower, probably due to their need of a period of

complete dormancy. This condition cannot be given in a permanently planted warm glasshouse where a mixed collection of plants is grown. *Clianthus puniceus* is a good example of this type of plant. It flowers freely when grown outdoors and given a little light winter protection but not when permanently planted indoors; neither does it do well when grown in a pot and brought indoors to flower. The same is true of *Lagerströemia indica*. For many years this handsome shrub was grown under glass in MAJOR ALBERT PAM'S garden at Wormleybury. It refused to flower and was then moved outside where, protected by the front wall of a glasshouse, it flowers with great freedom every year. These plants are examples of a few exceptions. The great majority of our perennial glasshouse plants will grow more freely and flower over a much longer period when planted out and allowed to grow naturally.

We have tried to get together for the corridors at Bayfordbury as wide a selection of the most choice and interesting plants as possible and the collection we have planted now contains some 350 species with representatives from 120 genera. Our limited space will not allow us to grow everything and we have had to be selective and grow only those plants which we judge to be the best of their kind or plants which are of some particular interest.

In arranging the planting we have used all types of flowering, foliage and berried plants to give continuity of colour and we have given particular attention to form, using bold foliaged plants to give effective contrast. The peak display of flower is, of course, in June but it has no real beginning or end; there are plants in flower, coloured foliage, berries and something of interest to see at all times. The roofs are clothed only thinly so that plants in the borders will get their fair share of light. This is important if we are to expect flowers from the non-climbers below. *Begonia Rex*, *Coleus*, *Dracaenas*, *Acalyphas*, are grown for their gracefully shaped or brightly coloured foliage and plants of *Ardisia crenata* and *Dianella caerulea* add variety and provide a bright display of coloured berries in the autumn and winter. The only bulbous plants so far planted are *Moraeas*, *Lapeyrousias* and *Watsonias*; the latter do particularly well and flower continuously throughout the summer months. The Bayfordbury corridors were planted in 1950 and suitable additions have been made from time to time as we have been able to procure plants. They have already become thoroughly established.

The more vigorous climbers have fully occupied their allotted space and already need an annual pruning, first to avoid the effect of a jungle so often seen when climbers are permanently planted and secondly to give light to the plants beneath them. Shrubby plants in the borders too have grown well and the ground is now carpeted with numerous variegated plants, ferns and *Selaginellas*. The whole has produced a bright and effective planting, satisfying, pleasant to view and full of interest.

There are certain indoor plants which must, inevitably, form the basis of any collection. These are the species which flower almost

continuously. Among roof plants—not all climbers—we must include *Rhodochiton volubile*, *Abutilon megapotamicum*, *Abutilon* 'Golden Fleece,' *Bougainvillea* 'Orange King,' *Begonia coccinea* and *Jasminum polyanthum*. *Pelargoniums*, *Jacobinias*, *Begonias*, etc., form bushes which too are almost always in flower. These are all well known and popular plants. Indeed, their popularity is, no doubt, due to their free-flowering habit and ease of cultivation. In a permanent planting of this kind one must strike a balance between plants which are almost always in flower and those, perhaps less well known, which are of greater interest. Too many of the former would detract from its value as a collection and too many of the latter could never produce a noticeable display of flowers. This we have had in mind when planting and arranging our corridor borders. There is one other point of very great importance on which the success of any border of flowers, to a great extent, depends. It is the planting of subjects close together which will make pleasing pictures of colour and form in themselves; and then blending these into a successful and balanced whole. This we have tried to do, perhaps not always with complete success but we have produced a pleasing planting of a fairly extensive and varied collection of plants.

Two of the earlier plants in the year to flower are *Jasminum rex*, the largest of the Jasmines, and *Strelitzia reginae*. These make a delightful combination of white and orange colour and bold, glaucous foliage. *Jasminum rex* comes from Siam and was introduced in 1920. Its large, dazzling white flowers contrasting with the deep green foliage, are very striking and more than compensate for its absence of scent. Planted in front of the Jasmine we have *Strelitzia reginae*, the 'Bird of Paradise' flower. In a strong soil, with a good root run and given plenty of water, it produces its striking orange and blue flowers quite freely. It is a plant which will endure much neglect but unless well cared for will fail to flower well or regularly.

Jasminum polyanthum too flowers in February. It is, perhaps, hardy with those in a more fortunate climate than ours. It is certainly worthy of a place in a coolhouse where it flowers from floor to roof and scents the whole glasshouse. The flowers are white, faintly tinged pink in the bud and are produced in long panicles of thirty or more flowers. Outdoors, the flowers, particularly on the reverse side, are more deeply coloured. *J. polyanthum* was re-introduced by FORREST in 1906 and is now deservedly becoming a popular plant. Planted with this Jasmine we have the true form of *Iris Wattii*. It has long stems topped by fans of sword-shaped leaves from which rise the flower stems. The flowers are a soft, lavender-blue colour with darker blotches around the base of the blade. They are produced from February to May and flowering with the Jasmine produce a picture of great charm.

One of the most interesting of our climbers is the 'Golden Vine of Brazil,' *Stigmaphyllon ciliatum*. This is another example of a plant which just survives in a pot but flowers with great freedom and over a long period when planted out. It is a warmhouse climber with

heart-shaped leaves of fine texture, beautifully veined and with a glaucous, shining surface. The large and curiously shaped yellow flowers are produced in the axils of the young growths which hang gracefully from the roof. Planted nearby is *Begonia coccinea* which sends up smooth, 6 feet tall stems terminating in masses of coral-red flowers. These are, perhaps, the most persistent of all greenhouse flowers, lasting many months, the female flowers with their long, brightly coloured and winged ovaries being particularly attractive. *B. coccinea* is one of the best-known members of the genus and has been used freely by the hybridists. The popular variety 'President Carnot' is one of its offspring. The 'Golden Vine' and coral-flowered Begonia planted near to one another make another most attractive picture.

Callistemon lanceolatus too flowers early in the year. The Callistemons inhabit the dry, arid districts of Australia where they grow into trees producing a hard timber used in tool making. To flower them well in the glasshouse their roots should be restricted. Our plants were well established before placing them in their permanent quarters and were planted in their containers. This restriction, together with careful late summer pruning, ensures plenty of flowers. The showy flower cluster of the Callistemon, resembling bottle brushes, with their beautiful, scarlet stamens, always arrest the attention of the visitor. They are so unlike anything else. Nearby we have planted *Prostanthera rotundifolia*, another Australian plant. This is probably the most lovely of the 'Australian mint bushes' and one of the few species of this extensive genus now cultivated. It has small, grey leaves, spotted with resinous glands which are strongly scented when crushed. In February, the whole bush is covered with panicles of small purple-blue flowers. *P. rotundifolia* does well planted out and has already reached 8 feet tall. Fortunately, it stands hard pruning. The contrasting form and colour of the *Callistemon* and the *Prostanthera* is delightful.

One of the most pleasing combinations in the warm corridor is *Allamanda Hendersonii* and *Pharbitis Learii*. Both are at their best in July and August. With few exceptions, all the *Allamandas* are probably forms of the single variable species *Allamanda cathartica* and all are worth growing. *A. Hendersonii* is the commonest species and probably the best. It is a vigorous climber with thick, leathery leaves and large, deep, trumpet-shaped yellow flowers, bronze in the bud and with white spots in the throat. It is free flowering and of easy cultivation and will stand hard pruning which is best done in late February as the flowers are borne on the ends of the young growths. *Pharbitis Learii* is the freest flowering and finest of the perennial 'Morning Glories.' Its deep lilac-blue flowers last only a day but are produced in great freedom during the summer months. It is a rapid grower, only suitable for the large glasshouse and is best renewed every two or three years by young plants which are easily raised from cuttings. The contrasting colours of the *Allamandas* and *Pharbitis* is pleasing in every way.

Among the plants which flower in the later months of the year is the

'Brazilian spider flower,' *Tibouchina semi-decandra*. The large, reddish purple flowers with their curious long curved stamens, which give them their popular name, last only a short time but the flowering season lasts several weeks. This is one of the most handsome plants for clothing a pillar in a cool, or even a cold, greenhouse, for it will stand a few degrees of frost. Another good winter-flowering plant is *Cestrum Newellii* which has brilliant scarlet flowers produced in great abundance followed by orange-scarlet fruits. Intense scarlet flowers are not easily blended with other colours and plants like *C. Newellii* are best placed between other subjects which are in flower at another season.

The attractive flowers of *Rhodochiton volubile* will always excite admiration with their conspicuous lilac calyces and purple, cylindrical tubed flowers produced in festoons at every leaf on its long growths. The calyces are persistent and remain colourful long after the corolla has dropped off. *R. volubile* flowers the first year from seed and was, at one time, frequently used as a summer bedding plant. It is seldom seen to-day.

We grow a number of the Abutilons and none surpasses *A. megapotamicum*. This species is hardy in many parts of southern England where it grows slowly and produces a few flowers rather late in the season. Grown in the cool glasshouse it will reach the roof and cover itself with flowers for almost the whole year. These are smaller than most members of the genus but are singularly beautiful with their long, scarlet calyces, bright yellow corolla and protruding mass of mahogany stamens. The best of the hybrid *Abutilons* is 'Golden Fleece.'

Many other climbers now cover the roofs of both corridors and mention should be made of the *Bougainvillaeas*, particularly the variety 'Orange King' with its large panicles of orange bracts which last many weeks. Also, *Aristolochia elegans*, remarkable for its odd shaped and patterned flowers; this graceful, free-blooming species is, fortunately, devoid of the unpleasant smell characteristic of most other members of the genus. We grow numerous Passion flowers for their ornamental flowers and fruits. Superstition has attached itself to the Passion flowers from early times and the charm of these plants lies in the arrangement of their flowers whose parts were fancied by the early Spanish travellers to represent the implements of the Crucifixion. The fertile form of *Passiflora caerulea* is well worth growing for its flowers and masses of orange fruits. So is *P. racemosa* with its long racemes of scarlet flowers and *P. quadrangularis* whose refreshing fruits are the granadillas of commerce used in preparing summer drinks (Fig. 137).

A number of Fuchsia species are grown, among them *F. corymbosa* whose clusters of narrow, long, scarlet flowers are followed by angular maroon fruits, said to be edible. *F. arborescens*, raised from seed last year, is flowering for the first time. It has large panicles of soft lilac-scented flowers, almost without a tube and should prove highly ornamental if it can be kept in hand.

Stephanotis floribunda grows and flowers freely in the warm corridor.

This climbing shrub of the old world is a warm greenhouse favourite, possessing all the good qualities of a perfect plant, a good habit, handsome foliage and beautifully scented, white tubular flowers (Fig. 139) which last well when cut or when used, as it frequently is, in floral work. Among other climbers we have well-established plants of *Clysostoma callistegioides* and its near relative *Anemopaegma Chamberlainii*, both of which flower freely and a number of *Thunbergia* species which made a good show during the summer, especially the evergreen *T. grandiflora*. The less vigorous *T. alata* is represented by forms with yellow or white, dark-eyed flowers which give them their popular name of 'black-eyed Susans.' *Hoya carnosa*, *Clerodendron Thomsonae* and the blue-flowered *C. ugandense* and *Hibbertia volubilis* are other plants grown for their display of flowers.

It is by no means easy to cover the roof of very large glasshouses with a wide variety of plants and balance their vigour by pruning so that over-crowding is avoided. The variety of plants to use, if we are at all "choosey," is not great. However, when we come to the borders themselves there is an overwhelming number of choice shrubby and semi-woody plants to pick from and it is by no means easy to know what to leave out. Mention has already been made of a number of shrubby plants grown in the borders and arranged to harmonise with the climbers above them. In addition, some of the best shrubby plants we grow are the various named forms of *Hibiscus Rosa-sinensis* with their large, red, orange, magenta and multicoloured flowers. These old-fashioned conservatory plants will always attract attention and can be recommended when they can be allowed plenty of room. *Prostanthera nivea* is another showy shrub if it can be given a light sunny position. It is a beautiful plant covered in February with white, sweetly scented flowers produced in large, graceful racemes.

The *Brunsfelsias* are represented by two species, *macrantha* and *latifolia*. *B. macrantha* is one of the finest and most floriferous shrubs for a warm greenhouse, flowering during most months of the year. It has large, rich purple flowers with a pronounced ring of deeper colour round the centre. *B. latifolia* is of dwarfer habit with slender, spreading branches and smaller flowers of pale violet with a white centre, the whole flower changing to white a day or so after opening. This unusual habit of bearing lavender and white flowers intermixed is curious but effective. It is sweetly scented. *Cassia laevigata* gives abundant, showy yellow flowers during the summer months. This old favourite, with its attractively cut foliage, is of easy culture and well worth growing in a large glasshouse. It must have plenty of sun to induce it to flower well.

Another compact, low-branching shrub is *Mitriostigma axillare* which gives a great profusion of white flowers resembling orange blossom in shape, colour and scent, during the winter months. Care should be taken when selecting cuttings for the propagation of Mitriostigma, to take them from upright branches as, like the Gardenias,

marked dimorphism occurs and only upright cuttings will produce upright plants.

The *Hedychiums* are represented by a number of species. These tall plants with their bold, handsome, Canna-like leaves give admirable contrast when growing among other subjects. They are the Butterfly Lilies or Garland Flowers of Southern Asia. Given plenty of water and feeding they will all flower well in the later months of the year. *H. Gardnerianum* is the best of the genus. It grows about 5 feet tall and has large, dense, terminal spikes of pale yellow, sweetly scented flowers with long, protruding red filaments. With the exception of *H. coronarium* which requires a warm house, they flower equally well in either corridor.

Sanchezia parvibracteata is another handsome plant with bold leaves of deep green colour, heavily veined and edged with bright yellow. It is a sub-shrub growing about 3 feet tall and has long, buff-yellow, Acanthus-like flowers, subtended by red bracts (Fig. 138). It is a better foliage plant than *S. nobilis* but has less brightly coloured flowers. Of similar flowering habit are the *Jacobinias* represented by *J. magnifica* and *J. Pohliana* both of which are free and continuous bloomers with pink and crimson flowers. *Jacobinias* are neater and freer flowering as young plants; they will grow to 10 feet tall but older specimens are inclined to get rather straggling.

Among the dwarfer plants we grow a number with brightly coloured or variegated foliage. *Begonias* take a prominent place and mention must be made of the various forms of *B. Rex* and *B. cathayana* which grows about 2 feet high and has handsome, cordate leaves, green with crimson veins above and bright mottled crimson over the whole undersurface. Several species of *Acalypha* add colour, particularly *A. Wilkesiana*, a shrubby plant with tender foliage mottled bright red and crimson and *A. Godseffiana*, a dense, bushy shrub with green and cream margined leaves. *Ficus rubiginosa variegata* with its leathery green and cream bordered foliage is also attractive. *Aichryson* × *domesticum*, a distinctive succulent, forms domes of brightly variegated foliage and with the *Tradescantias*, *Maranta bicolor*, *Pilea muscosa* and the *Selaginellas*, are some of the subjects used to carpet the borders.

The various forms of *Lantana Camara*, sometimes grown as half-hardy bedding plants, make a bright show of flowers in the cool corridor borders. These easily grown plants are not seen as often as they should be. Their cymes of brightly coloured, Verbena-like flowers are produced freely almost throughout the year. Maybe their rather unpleasant scent lessens their popularity.

Cuphea ignea too makes a neat, bushy plant for the front of the border. Its brilliantly scarlet calyx tube—there are no true petals—tipped with white, is the showy part of the flower. A number of *Pelargoniums* make bold splashes of colour in the cool corridor during the summer. The variety 'Salmon Fringed' and other chimaeras which produce two types of inflorescence on the same plant, always prove interesting to visitors. Another neat little flowering plant in the warm

corridor is *Ruellia portellae*, an easy plant for the amateur to grow with regularly formed and patterned leaves reddish beneath and bright rosy, tubular flowers.

Impatiens Sultani, too, makes a vivid splash of intense orange-red colour, so vivid that one must be careful where to plant it to avoid clashing with its neighbours.

Of quieter charm is the old-fashioned 'Mother of Thousands,' *Saxifraga sarmentosa*, which layers itself everywhere if allowed to do so. It is still well worth growing, is neat in foliage and crowned in spring with masses of small white flowers.

And there are many other interesting plants which might be mentioned or described, now established or becoming established in the Bayfordbury corridors. They contain an interesting collection rather than an exhaustive botanical collection of plants. We have given much thought to their choice and planting and we hope that when some of the slow starters like the *Lapergerias* and *Bomareas* come to full maturity, the corridors will look even better than they do now.

Many of the plants we grow were favourites in the conservatories of the large private houses of earlier generations. It is a pity that many may soon be lost to cultivation. It need not be so if keen amateur growers could be persuaded to grow a few more permanent plants in their smaller glasshouses. Nothing could be more satisfying than some of the *Begonias* which are in flower almost all the year or some of the weaker climbers which would clothe the roof where they give months of beauty and pleasure without interfering in any way with the cultivation of pot plants growing beneath them.

Gardening, we know, involves constant change but we should do all we can to keep the best of these lovely plants which were handed to us and are now in some danger of being lost.

GEORGE FORREST: HIS JOURNEYS AND PLANT INTRODUCTIONS

Patrick M. Synge

TO GEORGE FORREST and his collectors we owe a very large number of the fine plants introduced from Western China, Upper Burma and Eastern Tibet. In this century probably no greater contribution to our gardens has been made by anyone. FORREST travelled and lived in China almost continuously from 1904 to 1931 and had many adventures, particularly on his early journeys. Unfortunately during his life FORREST wrote very little and he died in Western China in 1931, when the expedition, which he had intended should be his last, was nearly completed. His plants, and there can be very few gardens of keen gardeners in this country without a few of them, obviously form his

chief memorial. But in order to keep alive his memory and to put on record such accounts as we know of his journeys and methods of collecting and some details of his chief introductions, our late President, LORD ABERCONWAY, recommended to the Council the publication of a book about FORREST and his plants. A previous scheme for a complete enumeration of his plants, of which he collected over 31,000 specimens, with descriptions of all new species discovered, on the lines of the sumptuous *Plantae Wilsonianae*, had to be given up on the grounds of the vast expense and labour involved and instead a more popular illustrated book has been prepared and published by the Society in collaboration with the Oxford University Press.*

This article has been written in the belief that many Fellows, who may not yet have seen the book, would be interested to know more about the really remarkable achievement of FORREST, and of what is unfortunately now a closed area to European travellers. FORREST was an Edinburgh man and always worked in close collaboration with the staff of the Royal Botanic Garden there; consequently it is fitting that the book should have been prepared under the editorship of DR. J. M. COWAN and contain a personal account of the collector by SIR WILLIAM WRIGHT SMITH. MR. E. H. M. COX, who had personal experience of the mountains of Upper Burma, having travelled there with FARRER, has written the chapter on FORREST's travels. In many places it is an exciting tale. When FORREST first went out in 1904 Yunnan was no peaceful country and his first expedition brought him adventures which he was lucky to survive, being caught up in trouble between the Tibetans and Chinese, and having to flee from the pursuing Tibetans for ten days without shelter and practically without food after his companions had been killed. Here is FORREST's own account of the adventure.

"The rising moon that night saw us making our way by a narrow and dangerous track along the right bank of the Mekong, the two Fathers on their mules and myself and the little band of native Christians on foot; on our left roared the Mekong in furious flood, on our right rose the great Mekong-Salween dividing range. Unfortunately, as in the dark we passed the Lamaserie of Patong, owing to a noise made by some of our party, we were detected, and a shrill signal whistle was sent across the river to warn the countryside of our escape. Early next morning, at the next village, we were told that the enemy, by executing a forced march, had crossed the river to the south, and had raised the people therein thus cutting off our retreat. The local headman, a drunken and treacherous rascal, found many excuses to delay our flight, and thus we lost more valuable time. Eventually we got away from him, and proceeding early in the forenoon we reached a height to the south of the village. From this point we had a clear and extensive view looking to the north, and saw a great column of smoke rising in the

* *George Forrest. Journeys and Plant Introductions.* Edited by DR. J. MACQUEEN COWAN. Royal 8vo. Pp. 252, incl. 5 colour plates and 85 monochrome illustrations. Obtainable from The Secretary, The Royal Horticultural Society. Price 30s. Postage and packing 1s. U.S.A., $5.

still morning air over the site of Tseku. Then our last hope of escape left us and we knew the enemy was hot on our track. . . . To the north I had a clear view of the crest of the ridge we had descended, and had not long to wait ere my expectations were realised. Suddenly there appeared a large number of armed men running at full speed in Indian file along the path we had just traversed. I gave the alarm at once and immediately all was confusion, our followers scattering in every direction. PÈRE BOURDONNEC became completely panic-stricken and rushed blindly through the dense forest. He had not covered a couple of hundred yards ere he was riddled with poison arrows and fell, the Tibetans immediately rushing in and finishing him off with their huge double-handed swords. Our little band, numbering about 80, were picked off one by one, or captured, only 14 escaping. Of my own 17 collectors and servants only one escaped.

"The valley in which we were surrounded was a rift in the hills some four miles long by one and a half broad, closed to the east by the Mekong, and to the west by the dividing range, while to the north and south were high ridges occupied by the enemy, and thickly clothed with pine and mixed forests. When I saw all was lost I fled east down a breakneck path, in places formed along the faces of beetling cliffs by rude brackets of wood and slippery logs. On I went down towards the main river, only to find myself at one of the sharpest turns, confronted by a band of hostile and well-armed Tibetans, who had been stationed there to block the passage. They at once gave chase. For a fraction of time I hesitated; being armed with a Winchester repeating rifle, twelve shots, a heavy revolver and two belts of cartridges, I could easily have made a stand, but I feared being unable to clear a passage before those whom I knew behind me arrived on the scene. Therefore I turned back, and after a desperate run, succeeded in covering my tracks by leaping off the path whenever I rounded the corner. I fell into dense jungle, through which I rolled down a steep slope for a distance of two hundred feet before stopping, tearing my clothes to ribbons, and bruising myself most horribly in the process. I then got behind a convenient boulder and made every preparation for a stand should they succeed in discovering my ruse, which I never doubted but they would. Fortunately, however, they did not find me, and, presuming I had continued my course up the valley rushed past my hiding place. There I lay till night fell, when I attempted to escape south, but after toiling up 3,000 ft. of rock and through forest and jungle, I found a cordon of Lamas with watch fires and Tibetan mastiffs, which precluded all hopes of escape in that direction. As daylight approached I had to return to my hiding place by the stream. The following eight days and nights were hopeless repetitions of the first; the days were spent in hiding in the most convenient spot I could find at dawn, the nights in trying to elude the watchfulness of my enemies and get away south.

" For that time all the food I had consisted of two dozen ears of

Photo, George Forrest

FIG. 129—*Gentiana sino-ornata*, from a coloured drawing by MISS LILIAN SNELLING in *Curtis's Botanical Magazine*, t. 9241, and from the book on *George Forrest, Journeys and Plant Introductions* (See p. 453)

FIG. 130—GEORGE FORREST, V.M.H.

FIG. 131—Mossoo collectors ready to start on FORREST's last journey

Photos, George Forrest

FIG. 132—Packing cases ready for despatch (See p. 451)

Photo, George Forrest

FIG. 133—***Primula malacoides*** growing in the wild in Yunnan. An outstanding horticultural introduction (See p. 452)

Photo, George Forrest

FIG. 134—*Paraquilegia microphylla* in Yunnan. FORREST described this as "the finest cliff plant of the whole range . . . a real gem" (See p. 453)

FIG. 135 — The Warm Corridor in July

THE GREENHOUSE CORRIDORS AT BAYFORDBURY

FIG. 136—The Cool Corridor in August (See p. 441)

Photos, L. S. Clarke

Photo, L. S. Clarke

FIG. 137—***Passiflora quadrangularis***, a vigorous, warmhouse climber (See p. 445)

Photos. L. S. Clarke

FIG. 138—*Sanchezia parvibracteata.* A handsome foliage plant for the warm glasshouse (See p. 447)

FIG. 139—*Stephanotis floribunda* at Bayfordbury (See p. 446)

wheat and a handful of parched peas, which I providentially found where they had been dropped by a fugitive or some of the Lamas. On the second day I was forced to discard my boots to avoid leaving distinctive trails, burying them in the bed of the stream. Another day I had to wade waist deep for a full mile upstream to evade a party who were close on my heels. Once a few of them came on me suddenly and I was shot at, two of the poisoned arrows passing through my hat. Another time my hiding place was discovered by a Tibetan woman, one of many who had been sent out to track me down. Once as I lay asleep under a log in the bed of the stream I was awakened by the sound of voices, and a party of thirty Lamas in full war paint crossed the stream a few yards above me.

"At the end of eight days I had ceased to care whether I lived or died; my feet swollen out of all shape, my hands and face torn with thorns, and my whole person caked with mire. I knew the end was near and determined to make one more bid for life. In the valley there happened to be two small villages of four to six huts in each, peopled by Lissus, a sub-tribe of Tibetans. I decided on holding up one of these to force the inhabitants to give me food. This plan I carried out on the evening of the ninth day. Fortunately, instead of opposing me, the people proved friendly. Their one and only food consists of parched barley, or wheat coarsely ground; it is called 'tsamba.' This they offered me, and having little self-control after such a long starve, I ate it ravenously, in fact to such an extent that I almost died of the effects."

However, as MR. COX writes, plant collecting was for GEORGE FORREST an all-embracing life's work and undaunted he returned again and again to these mountainous regions on the borders of Western China, South-eastern Tibet and Northern Burma. Surely these must be among the richest regions of the world for plants of horticultural value for this country as well as being regions of great and dramatic beauty of mountain and gorge. He managed to train most effectively a series of native plant collectors, who made lengthy journeys on his behalf, so that the area covered was very large, perhaps fifty thousand square miles, an area far larger than one man could ever have covered on his own. The photographs of his collectors with their presses (Fig. 131) and some of the packing cases ready for despatch (Fig. 132) give a better idea of the scale of his operations than any description could do. A short passage from one of the last letters which he wrote shortly before his death, sums up the results of his last expedition. "Of seed such an abundance, that I scarce know where to commence, nearly everything I wished for and that means a lot. Primulas in profusion, seed of some of them as much as 3–5 lb., same with Meconopsis, Nomocharis, Lilium, as well as bulbs of the latter. When all are dealt with and packed I expect to have nearly if not more than two mule-loads of good clean seed, representing some 400–500 species, and a mule-load means 130–150 lb. That is something like 300 lb. of seed. If all goes well I shall have

made a rather glorious and satisfactory finish to all my past years of labour."

Rhododendrons always had a special appeal for FORREST and as DR. COWAN'S account shows his contribution was staggering—309 new species in 27 different series. Some of these have by now been reduced to synonymy as a result of greater knowledge and study of the genus, but the record still remains. As in other genera he also introduced many plants to cultivation previously described from the specimens collected by the ABBÉ DELAVAY or others of the great priest collectors.

Among his Rhododendron introductions are such plants as *R. Griersonianum*, which, although beautiful and very striking in itself, has probably had a greater influence on Rhododendron hybridization than any other species. Among tender Rhododendrons he introduced *R. Taggianum*, one of the most beautiful of all the Maddenii Series, while to him also we owe the big-leaved *R. sinogrande*. DR. COWAN gives us a picture of the late MR. JOHN HOLMES walking triumphantly the length of Princes Street carrying shoulder high the huge truss, supported with gigantic leaves like a magnificent umbrella, when he brought the first flowers to be grown in this country to the Edinburgh Botanic Garden.

FORREST described it as the finest species found in the forests on the western flank of the Shweli-Salween Divide. *R. giganteum*, which was given an F.C.C. this year, was another of his introductions. Of this species he found a tree 80 feet in height with trunk of 7 feet 9 inches in girth at 5 feet from the ground. Both *R. lacteum*, perhaps the finest yellow-flowered Rhododendron and *R. fictolacteum* were also first introduced to cultivation by FORREST. Among the more dwarf Rhododendrons he also introduced *R. Forrestii* and *R. repens*, which is now regarded as synonymous with *R. Forrestii*, and many of the Lapponicum Series including *R. russatum*, *R. scintillans*, *R. impeditum*, *R. fastigiatum* and *R. cantabile* fitly named as "Worthy to be sung." One of his best plants is the dwarf and compact pink form of *R. racemosum* introduced under the number F. 19404 and the photograph taken by FORREST himself shows this plant growing as we would like to see it on the mountains of W. China, a hillside of short grass covered with the pink-flowering low bushes of Rhododendron.

His Primulas, described by DR. H. R. FLETCHER, were nearly as notable and the vast horticultural development of forms of one of them, *P. malacoides*, is significant of what can be raised from one single species. Fig. 133 shows his photograph of this species growing in the wild. In all he gathered 154 species and sub-species of Primula. The yellow *P. helodoxa* is perhaps unsurpassed among the Candelabra Primulas, and other introductions in this section include *P. Bulleyana*, *P. aurantiaca* and *P. Beesiana*. Of the sections of Primula such as Petiolares, Nivales and Amethystina FORREST collected most beautiful species, but unfortunately many of these, such as *P. Agleniana* and *P. spicata*, have proved most fleeting in cultivation. However, it should

be an inspiration to future collectors to read about them here as we hope that in times to come China may be an open country again for European collectors and that also Chinese collectors themselves may send us seed. Two of FORREST's Primulas, *P. nutans* and *P. Viali*, formerly known as *P. Littoniana*, have become well established among the regular inhabitants of English gardens and there are few more beautiful species, *nutans* with its pale powder-blue flowers and mealy stems and *Viali* like a miniature Red-hot Poker with its rich blue flowers and scarlet-crimson buds and calyces.

Among a large range of Gentians which he introduced *G. sino-ornata* (Fig. 129) must surely rank as one of the finest plant introductions of any collector at any time. He found this on his first expedition in 1904 although it was not till 1910 that he was able to introduce it into cultivation and this time it was from an altitude on the Lichiang range lower than the 14–15,000 feet where he first found it. He also collected several varieties including a white form. MR. WILKIE records that the most outstanding was var. *gloriosa*, F. 20640, with flowers over 2½ inches in length but unfortunately it is not in cultivation. There were also many others such as *G. Georgei*, which is illustrated in the book, which can only whet our appetite for further re-collecting in these areas.

Among the shrubs of outstanding merit are *Camellia saluenensis*, one of the parents of that most excellent series of plants known as *C.* × *Williamsii*, and the first wild forms of *C. reticulata*, of which wonderful ranges of seedlings can be seen in several Cornish gardens. Although previously known, *Jasminum polyanthum* was first introduced into cultivation from a collection made on the 1931 expedition when MAJOR LAWRENCE JOHNSTON accompanied FORREST for a time. It is one of the very best of cool greenhouse plants, flowering and growing abundantly and giving forth one of the strongest sweet scents. It is hardy in the warmer areas of this country. Among the Magnolias FORREST's collections are second only to those of E. H. WILSON and the varying forms of *M. mollicomata*, including the wonderful deep purple-crimson 'Lanarth' represent some of the most spectacular of all trees and shrubs which it is possible to grow in our gardens. It is fortunate that these are now becoming more widely distributed from seed and grafts taken from the plants raised from FORREST's original seed. Another discovery of great interest was *M. nitida*, well named for the beautiful shiny leaves which, with the bronze colour of the young growth, make it one of the finest evergreens, though unfortunately it appears to be a tender plant outside gardens in Cornwall and the West of England. The flowers are pale primrose yellow with a deep crimson streak down the outside of each petal; see *Botanical Magazine* (t. 16 of the New Series).

There are so many more good plants that it is impossible to do more than name a very small proportion. One of the most lovely is *Paraquilegia microphylla* and FORREST's own photo (Fig. 134) does justice to this frail and delicate beauty. *Pieris Forrestii* with its brilliant

scarlet young growth and trusses of creamy white bells is one of the most useful as well as striking of these introductions and can and should be grown in all gardens where there is not lime in the soil. It has been awarded an F.C.C. and an Award of Garden Merit. *Incarvillea lutea* was described by FORREST in the following words: "Of the countless and beautiful alpines which inhabit the mountains of N.W. Yunnan, few stand out more prominently than *I. lutea.*" It has grown well in English gardens, but unfortunately flowered much more rarely than some other species of the genus, but with its racemes of large pale yellow or apricot-tinted flowers standing above the graceful dark green glossy pinnate leaves it must be a very beautiful plant.

Countless is perhaps one of the right words to use about FORREST'S introductions. It is in the words of SIR WILLIAM WRIGHT-SMITH, "a thousand pities that he could never be induced to write an account of his travels. Often spoken of, it was always postponed till his days of retirement—days which never arrived." This book can never be a substitute for such an account, but in the twenty years which have passed since his death we have had a chance to grow many of his plants to flowering size and to test and assess their value in our gardens; while inevitably there have been disappointments the triumphs far excel these. This book tells also of many good plants which should be re-introduced and a study of his specimens in Edinburgh would show many more; perhaps there are still as many exciting plants in the mountains of Yunnan as we have already managed to introduce and establish successfully. It is unlikely, however, that any plant collector will ever again equal FORREST'S record, which will always stand as an inspiration to future travellers.

INTERNATIONAL TRADE IN PLANTS AND THE NEED FOR HEALTHY PLANTING MATERIAL

W. C. Moore, M.A.
Plant Pathology Laboratory, Harpenden

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No one is likely seriously to dispute the need for international traffic in plants and plant products. Few if any countries are fully self-supporting, and life is possible only by an international exchange of commodities, whether natural products such as coal, oil or minerals, or the products of industry, agriculture and horticulture. And even if such exchanges were not essential to life as we know it, they would be made inevitable by the enterprise, enthusiasm or cupidity of man.

One of the chief problems created by international exchange of plants and plant products is the great danger of spreading diseases and pests from one part of the world to another with planting material, and few of those who have any idea at all how serious this risk may be would advocate an entirely unrestricted exchange. One or two examples of the effect of importing diseases may be mentioned. The extinction of many popular and widely grown varieties of Potato was threatened following the introduction of Wart Disease (*Synchytrium endobioticum*) into Great Britain at the beginning of this century, and Blister Rust (*Cronartium ribicola*) of Pines, which was introduced with nursery stock into North America about the same time, soon spread throughout the eastern United States and menaced the White Pine forests in the Pacific Northwest. At the present time we are witnessing the destructive effect of the introduction of Chestnut Blight (*Endothia parasitica*) into Europe. This disease reached U.S.A. from China in 1904 and spread with alarming rapidity on the native Chestnut, *Castanea dentata*. The losses caused by it in the States since then have been estimated at some 100 million dollars. There was no properly authenticated record of *Endothia parasitica* in Europe until 1938, when it was found in Italy near Genoa. It spread considerably during the 1939–45 war and all efforts to check its progress and control have unfortunately proved unavailing. Furthermore, it is now established in Switzerland and Yugoslavia. A disturbing feature is that the fungus has begun to attack European Oaks in several parts of Italy. Many other, if less spectacular, examples of diseases newly introduced into different countries could be quoted, including the seed-borne Bacterial Canker of Tomato (*Corynebacterium michiganense*), The Downy Mildew of the Vine (*Plasmopara viticola*), Antirrhinum Rust (*Puccinia antirrhini*), and Spotted Wilt of Tomato: and what is true of diseases is true also of pests. The establishment of Colorado beetle in the Bordeaux area of France in 1922 and its gradual spread over most of Europe is one notable example, and the rapid progress of the Fall Webworm (*Hyphantria cunea*) southwards and westwards from Hungary, where it was first seen in 1943, is being followed with some apprehension. Moreover, the kind of introduction that has occurred in the past is likely to happen again and again in the future unless due precautions are taken.

HEALTHY PLANTING MATERIAL

The great need, therefore, is to try to ensure that when planting material moves in international traffic it is healthy, or at least as free as possible from diseases and pests. I would particularly emphasize that this applies to seeds as well as to vegetatively propagated material. It is, I think, largely because of our ignorance of seed-borne diseases that seeds are sometimes assumed to be safer than plants. Care is also necessary in the transport of material of plant origin not intended for planting, as well as in the choice of packing materials.

It is the methods adopted by the Governments of importing

countries to meet these needs that give rise to difficulty and disagreement. Most countries now issue regulations or impose quarantine measures designed to prevent or at least hinder the introduction of plant diseases and pests into their territories. The approach has usually been a national one, each importing country imposing the measures it thinks fit to safeguard itself, without worrying unduly about the restrictive effect they might have on international trade. Many such regulations have been open to criticism because they have no sound biological basis, but have been based on fear of the unknown, copied unnecessarily from other countries, or even introduced as more or less panic measures. Again, it cannot be denied that some plant import regulations give a greater or more convenient trade protection to the producer in the importing country than that obtained from high tariffs or embargoes. Consequently, there is on the one hand an incentive to introduce or maintain stringent regulations which cannot be justified on scientific grounds, and on the other a tendency to look upon quarantines as nothing more than trade barriers which can legitimately be evaded or broken down by bargaining irrespective of their scientific merits.

Obviously, even the plant pathologist cannot altogether ignore economic factors, for one of the main objects of imposing plant import regulations is economic—namely, to protect valuable crops—and the regulations cannot be administered without some degree of interference with commerce. What he can and should do is to seek information about the economic questions involved and then, when devising import regulations, to use that knowledge in such a way as to reduce interference with commerce to the minimum consistent with reasonable safety.

MACHINERY FOR INTERNATIONAL CO-OPERATION

The problem is an international rather than a national one, and attempts have been made from time to time to deal with it by international action. One such attempt was made at the International Conference of Phytopathology held in Rome in 1914, and another culminated in the Rome Convention of 1929, but neither of them achieved its purpose. A further recent effort shows distinct promise of better things. In the spring of 1950 the Netherlands Ministry of Agriculture convened an International Conference at The Hague to discuss proposals for the improvement of international plant protection regulations. It was originally arranged as part of the celebrations of the jubilee of the Netherlands Phytopathological Service, but at the request of the Food and Agriculture Organization of the United Nations (F.A.O.) its scope was extended to deal with certain other matters, including the revision of the Rome Convention of 1929. As a direct outcome of these and subsequent discussions a new International Plant Protection Convention was prepared, and this was signed by some thirty countries at the Seventh Session of the F.A.O. Conference held in Rome in November 1951. Under this Convention each contracting

Government undertakes, among other things, to collect and distribute information about plant diseases and pests occurring in its territories, to make phytosanitary inspections of growing plants and areas under cultivation, and to issue phytosanitary certificates which, when applied to export material intended for planting and propagation, shall conform with the standard certificate included in the Convention. Authority is given to regulate import of plants and plant products and to prescribe restrictions or regulations, provided they are based solely on phytosanitary grounds. A praiseworthy effort has in fact been made to create a broad and flexible international agreement on basic principles which can readily be adapted to meet changing conditions and particular requirements

The establishment of autonomous and financially independent regional organizations within the framework of the World Convention is also contemplated. Thus provision is made for supplementary agreements between countries located in the same geographical area and having common problems about diseases and pests of relatively local importance. Regional organizations will also function as co-ordinating bodies in the areas covered, and they can participate in various activities to achieve the objectives of the Convention.

A permanent regional organization for Europe is already active. In 1950 the International Colorado Beetle Committee, which had been set up three years earlier to ensure co-ordinated governmental action in dealing with this troublesome insect, was reconstituted as the European Plant Protection Organization (EPPO), and a Convention embodying its constitution and functions was formally signed by the representatives of fifteen European Governments in Paris in April 1951. The proposed Phytosanitary Convention for Africa south of the Sahara paves the way for a second regional organization, and it is possible that South-East Asia may ultimately provide a third.

THE PROBLEMS OF PLANT PROTECTION LEGISLATION

The machinery for achieving something of real value is clearly now available, but it cannot work effectively without mutual goodwill and confidence between officials, plant pathologists, exporters and importers; that is, without co-operation between people as well as between Governments. Apart from all other considerations, it cannot be expected that mainly exporting countries will regard the problem in the same light as mainly importing countries, and some form of compromise is therefore essential. The chief guiding principle must be to facilitate international trade and reduce restrictions to the minimum, compatible with national protection from the introduction of new diseases and pests.

This immediately raises the question of the meaning of "national protection," and on this there can be no one generally acceptable answer. It stands to reason that island countries or countries protected in part by natural geographical barriers such as mountains or deserts

are in a position more easily to protect themselves than countries with common national boundaries that do not afford the slightest barrier to the spread of diseases and pests. Again, it must be conceded that the need for protection is greater in countries in process of agricultural development, or where vast areas are planted with a single crop or even a single variety, for it is under such conditions that epidemics of new diseases most often spell disaster. The urgency for protection is, in fact, different for different countries or continents.

Experience has shown that spread of pests and plant parasites into new areas most often takes place as a result of importing infected planting material; that parasites which do reach new countries frequently cause much greater loss there than in the old ones; that organisms regarded as relatively harmless in one country may become damaging parasites when introduced into another country; and that even with a parasite of almost world-wide distribution there is always the risk of introducing new strains of it.

For these reasons alone restrictions of some kind are justifiable and inevitable. Nevertheless, everyone ought to recognize that no export or import regulations will entirely prevent the transport of insects, fungi and other parasites from one country to another. Pests may be carried unattached to merchandise in ships, trains or aircraft; plants may act as symptomless carriers of viruses; and fungus spores or insects can be carried long distances in air currents. Again, the balance between promoting international traffic in healthy plant material and stopping it altogether is a very delicate one. Indeed, unless restrictions are defined in such a way as to avoid covering any and every fungus, virus, insect and eelworm, known or unknown, injurious or innocuous, any attempt to achieve something of mutual advantage by international co-operation is doomed to failure. On the other hand, the attempt to achieve simplicity and uniformity in phytosanitary regulations and quarantine measures, though very desirable, may defeat its own ends if carried too far. With these conflicting factors clearly in mind I would like briefly to discuss some of the ways in which the problem is being or can be tackled.

Intelligence work

Perhaps the greatest single contribution that can be made towards international agreement about international traffic in plants is the institution of adequate national plant disease and pest surveys, and world-wide exchange of the information gathered from such surveys. This, as already pointed out, is envisaged in the F.A.O. Plant Protection Convention of 1951. Such surveys should at least help to eliminate regulations based on ignorance or fear. But if each exporting country undertakes to provide importing countries with full and reliable knowledge of the distribution and incidence of pests and diseases within its territory, each importing country must see to it that the exporting country is not penalized by the immediate institution of permanent

embargoes or stringent import regulations, as it so often has been in the past. That way spells failure.

Phytosanitary certificates

Until recently each importing country has imposed the safeguarding measures thought desirable to protect its own territory, and the exporting country has been content, in greater or less degree, to satisfy the conditions laid down, normally by issuing certificates based on a pre-export examination of consignments of plants and by making certain special declarations. This has proved to be insufficient, for many diseases—including most virus diseases—cannot be detected during examination of plants in a dormant condition. Consequently, some countries are now calling for additional certificates that cover inspection of the growing crops from which the planting material for export is to be taken. Such requests are likely to become general and might complicate rather than simplify things.

On the other hand, if it were an obligation on each country and each exporter to take all reasonable steps to control diseases in their crops and to prevent the export of fungi, insects and other organisms with planting material, a single common health certificate, internationally adopted and implying inspection of the growing plants as well as pre-export examination, would not only be possible but a great convenience, provided its true value is recognized. The model certificate attached to the F.A.O. Convention of 1951 states that "the plants, parts of plants or plant products described below or representative samples of them were thoroughly examined . . . and were found . . . to be substantially free from injurious pests and diseases" and that "the consignment is believed to conform with the current phytosanitary regulations of the importing country." This calls for an immediate pre-export examination only, but it could be adapted on some future occasion to cover also earlier inspections of the growing plants.

The fact remains that, however worded, health certificates can never provide absolute guarantees. Their value depends less on their preventing the arrival of a particular disease or pest than on preventing its arrival continually and in appreciable quantities. They can do no more than satisfy the importer that he is receiving goods of high quality and reasonably free from diseases and pests. In addition to the common health certificate for all planting material, importing countries will usually find it necessary to impose more stringent measures, directed against particular diseases or against diseases of particular plants, and perhaps involving even embargoes on certain plant genera.

It will be obvious that the success of such a certificate system depends almost wholly on mutual confidence and trust beween the plant protection officials of the exporting and importing countries, and equally so between those officials, the members of their respective phytopathological services, and exporters. The chief safeguard would seem to lie in

the authority to importing countries, given under the F.A.O. Convention of 1951, to regulate the entry of plants and plant products (for instance, by a process of check inspections), and if necessary to detain, treat, destroy or refuse entry to diseased consignments. The results of such check inspections would naturally and inevitably influence the degree of trust to be placed in the work of the exporting country, and could legitimately be used to discriminate between countries in the application of regulations.

Health certification schemes

A most welcome and encouraging development in the United Kingdom and other countries in recent years has been the introduction of domestic Health Certification Schemes on a voluntary or compulsory basis. In Britain such schemes are already in operation for Potatoes, Strawberries, Raspberries, Black Currants, fruit tree rootstocks, Hops, Shallots and Daffodils, and there is no reason why they should not ultimately be extended to cover other vegetatively propagated plants, such as Dahlia and Chrysanthemum, as well as seed crops. These schemes are designed primarily as an effective weapon against virus diseases by providing the grower with healthy planting stock of guaranteed purity. Account is also taken of other diseases and pests, and though certain permissible "tolerances" are inevitable—as, indeed, they must often also be in issuing phytosanitary certificates—I see no reason why the standards for certification laid down primarily for domestic purposes should not in general be acceptable internationally.

Restrictive measures, including embargoes

As already indicated, health certificates alone do not always provide sufficient safeguards. Each country should be at liberty to impose special restrictions, provided they are based on sound biological reasons. It is highly important, however, that each country should review its regulations from time to time. Much dissatisfaction could be avoided if restrictive measures were withdrawn when they have served their purpose, and if legislation were revised regularly in the light of fresh biological knowledge about parasites and pests. In all this, international co-operation affords an excellent opportunity for reaching agreement on general principles without attempting to secure rigid international uniformity, which is both impractical and undesirable. There are diseases against which each country or group of countries is particularly anxious to protect itself, but the list of diseases as well as the most appropriate method of protection will differ for different countries. Sometimes a simple declaration about freedom of a particular nursery or parish from a particular disease may be sufficient; at other times it may be necessary to insist on fumigation, on post-entry or intermediate quarantine, or even on a complete embargo of certain plants. Embargoes are distasteful and often suspect, but if the trade in a particular commodity is of little or no value and involves serious phytopathological

risks, an embargo can be regarded as legitimate, for it gives the greatest possible measure of insurance against foreign diseases and pests. There is wide scope for achieving much simplification and some measure of uniformity in plant protection regulations, and it is a field in which regional organizations can play a prominent part. The European Plant Protection Organization has already made recommendations about the general principles on which restrictions against four internationally important diseases and pests—Wart disease of Potato, Potato root eelworm, Colorado beetle, and San José scale—might reasonably be based* and this list could be extended with advantage. It has also prepared a selected list of dangerous diseases and pests not known to occur in Europe, and suggested appropriate measures for minimizing the danger of their introduction into Europe without unduly interfering with international trade.†

Co-operation of Exporters

Most emphasis has hitherto been placed on governmental and inter-governmental action, for the simple reason that the exporter himself has so often been left out of account. He has become bewildered by the ever-increasing complexity of import and export regulations, suspicious of their significance, harassed by government officials, and irritated by what seems to him unnecessary interference with his lawful trade. Under these circumstances it is not surprising if he is apt to forget that his own phytopathological service is doing its best to protect him from foreign pests. Yet exporters and the horticultural industry they serve could play a not insignificant part in promoting the flow of international traffic in plants by close co-operation with their phytopathological service in conforming to the demands of importing countries; and perhaps also among themselves, for Associations of growers with common interests should be alive to the fact that legislative action on the part of an importing country, which would affect all their members, might well result from indiscretions on the part of one of them. One of the many difficulties about plant protection regulations is the interpretation to be placed on them. This must normally be left for mutual agreement between the importing and exporting countries. If, for example, a country requires a certificate stating that the plant material included in a consignment for export was examined while growing and was found to be free from injurious diseases and pests, clearly some realistic interpretation must be placed on the phrase. It is not always possible to indicate during the summer exactly which plants or kinds of plants will be exported during the following autumn and winter, and many similar problems arise, especially on mixed nurseries. These

* Report of Quarantine Working Party. European Plant Protection Organization, Paris, February 1951, 16 pp.

† Report of the Working Party appointed to consider the danger to European countries of pests and diseases which might be introduced from outside, and to recommend appropriate preventive measures. EPPO. Paris, December 1951, 11 pp.

problems can most readily be solved by collaboration between exporter and official, and I am happy to feel that such collaboration is now being achieved in Great Britain, for the reputation of a country's phytopathological service depends far more on its integrity than on its size or structure.

SUMMARY

Carriage of pests and parasites in or on plants and plant material moving in international traffic is the chief means by which diseases and pests reach new territories, where they are often more destructive than in the old ones. Considerable interference with international trade in plants has resulted from plant protection regulations and quarantines imposed by importing countries to safeguard their crops from the introduction of foreign diseases and pests.

The problem is reviewed and attention is drawn to recent Conventions designed to facilitate co-operation in overcoming difficulties and to ensure the export and import of healthy planting material. The benefits and limitations of phytosanitary certificates are discussed, as also are the need for national plant disease surveys and further development of national health certification schemes. Special emphasis is laid on the importance of close co-operation between government officials, plant pathologists, exporters and importers with a view to the reduction, simplification and interpretation of plant legislation in such a way that trade will be facilitated and adequate protection from new diseases and pests maintained.

NOTES FROM FELLOWS

Victor Hugo on Nettles

ALL gardeners will share Judge Drysdale Woodcock's hesitation to accept as facts what Victor Hugo wrote in his poem in prose in praise of Nettles. Young Nettle leaves do not make "excellent" greens. For "excellent" read "eatable." In the gastronomic scale they rank well below Turnip tops. They are greatly improved when boiled together with either Turnip tops, or Sorrel, or Lettuce, or any other kind of cultivated leaves. I have never heard of anybody mixing Nettle seeds with fodder, and I am afraid that the collecting of Nettle seeds would prove an expensive pastime to-day, and I do not agree that Nettles make "excellent hay." I only wonder if the reference "men are like nettles" can mean that the poet like any ordinary mortal had been "stung"?

ANDRÉ L. SIMON

The Wine and Food Society,
30 Grosvenor Gardens,
London, S.W.1.

WISLEY TRIALS, 1953

BORDER CARNATIONS

One hundred and six varieties of Border Carnations were grown at Wisley during 1953. Five plants of each variety were planted in November 1952. On the recommendation of the Joint Border Carnation and Picotee Committee the following awards have been made jointly by The Royal Horticultural Society and The British National Carnation Society to Border Carnations after inspection of the trial at Wisley. The number in brackets after the description of the variety is that under which it was grown in the trial.

LESLIE RENNISON. (Raised by the late Mr. R. Thain, introduced and sent by Messrs. Allwood Bros., Ltd., Wivelsfield Nurseries, Haywards Heath, Sussex.) **F.C.C.** July 16, 1953.—Described R.H.S. JOURNAL **72,** page 206 (**H.C.** 1946, **A.M.** 1947). [87]

COTTAGE MELODY. (Raised, introduced and sent by Messrs. Allwood Bros., Ltd.) **A.M.** July 16, 1953.—Plant vigorous with short fairly stout stems 12 inches long. Flowers 2¼ inches diameter, freely produced; petals broad, entire, with margins slightly serrated, ground Chinese Coral (H.C.C. 614/1) heavily edged and splashed Crimson (H.C.C. 22/1). [92]

PERFECTION. (Introduced and sent by Messrs. Allwood Bros., Ltd.) **A.M.** July 16, 1953.—Plant vigorous with slender rigid stems 16 inches long. Flowers 2¼ inches diameter, of good form, freely produced; petals broad, entire, ground white edged Geranium Lake (H.C.C. 20/1). [89]

STARLIGHT. (Raised, introduced and sent by Messrs. Lindabruce Nurseries, Ltd., Freshbrook Road, Lancing, Sussex.) **A.M.** July 17, 1953.—Described R.H.S. JOURNAL **78,** page 30 (**C.** 1952). [98]

SUSSEX FANCY. (Raised, introduced and sent by Messrs. Allwood Bros., Ltd.) **A.M.** July 16, 1953.—Plant vigorous with stout very rigid stems 20 inches long. Flowers 3 inches diameter, of good form, freely produced; petals broad, entire, ground Fuchsine Pink (H.C.C. 627/1) heavily marked Ruby Red (H.C.C. 827). [101]

WATER NYMPH. (Raised and introduced by the late Mr. F. W. Goodfellow and sent by Messrs. F. W. Goodfellow (Nurseries) Ltd., Valley Nurseries, Aldridge, Staffs.) **A.M.** July 16, 1953.—Described R.H.S. JOURNAL **77,** page 183 (**H.C.** 1951). [53]

ALDRIDGE IDEAL. (Raised by the late Mr. F. W. Goodfellow, introduced and sent by Messrs. F. W. Goodfellow (Nurseries) Ltd.) **H.C.** July 16, 1953.—Plant vigorous with stout rigid stems 20 inches long. Flowers 2⅝ inches diameter, of very good form, freely produced; petals broad, entire, white evenly marked and edged Pansy Purple (H.C.C. 928). [81]

COTTAGE VIVID. (Raised, introduced and sent by Messrs. Allwood Bros., Ltd.) **H.C.** July 17, 1953.—Plant vigorous with fairly stout rigid stems 20 inches long. Flowers 2½ inches diameter, of good form, freely produced; petals broad, entire, a bright rich red near Orient Red (H.C.C. 819/1). [103]

HEARTSEASE. (Raised and introduced by the late Mr. F. W. Goodfellow and sent by Messrs. F. W. Goodfellow (Nurseries) Ltd.) **H.C.** July 16, 1953.—Described R.H.S. JOURNAL **78,** page 30 (**C.** 1952). [56]

SUNSTAR. (Raised and introduced by the late Mr. F. W. Goodfellow, and sent by Messrs. F. W. Goodfellow (Nurseries) Ltd.) **H.C.** July 16, 1953.—Described R.H.S. JOURNAL **78,** page 30 (**C.** 1952). [59]

ALDRIDGE YELLOW. (Raised by Miss R. Goodfellow and sent by Messrs. F. W. Goodfellow (Nurseries) Ltd.) **C.** July 16, 1953.—Plant vigorous with stout rigid stems 22 inches long. Flowers 2½ inches diameter, of good form, very freely produced; petals broad, entire, a clear shade of Sulphur Yellow (H.C.C. between 601 and 601/1). [66]

APPLEY BEAUTY. (Raised, introduced and sent by Mr. Geo. E. Toms, Appley Nurseries, Ryde, Isle of Wight.) **C.** July 26, 1953.—Plant vigorous with stout rigid stems 28 inches long. Flowers 2½ inches diameter, of good form, freely produced; petals broad, entire, ground a bright shade of Shrimp Red (H.C.C. between 616 and 616/1) striped Tyrian Purple (H.C.C. 727) and Cobalt Violet (H.C.C. 634). [106]

BENNIC FANCY. (Raised and sent by C. N. Nichols, Esq., Bennic, 51 Manor Road, Stretford, Lancs.) **C.** July 26, 1953.—Plant vigorous with stout rigid stems 20 inches long. Flowers 2¾ inches diameter, freely produced, flattish flower with small tuft of petals in the centre; petals broad, serrated, Geranium Lake (H.C.C. between 20 and 20/1) marked Cardinal Red (H.C.C. 822). [84]

FIERY CROSS. (Raised by Mr. James Douglas, Edenside, Great Bookham, Surrey, introduced and sent by Messrs. Allwood Bros., Ltd.) **C.** July 16, 1953.—Plant vigorous with stout rigid stems 20 inches long. Flowers 2½ inches diameter, of good form, freely produced; petals broad, entire, a vivid shade of Orient Red (H.C.C. 819/1). [36]

SCARLET FANCY. (Sent by Messrs. Allwood Bros., Ltd.) **C.** July 26, 1953.—Plant vigorous with stout rigid stems 23 inches long. Flowers 2½ inches diameter, of good form, freely produced; petals broad, entire, Turkey Red (H.C.C. 721) marked Oxblood Red (H.C.C. 00823). [65]

DIANTHUS

On the recommendation of the Joint Dianthus Committee, the following awards have been made jointly by The Royal Horticultural Society, The British National Carnation Society and The Alpine Garden Society to Dianthus after trial at Wisley. The number in brackets after the description of the variety is that under which it was grown in the trial.

SHOW PORTRAIT. (Raised, introduced and sent by Messrs. Allwood Bros., Ltd., Wivelsfield Nurseries, Haywards Heath, Sussex.) **F.C.C.** June 26, 1953.—Described R.H.S. JOURNAL **77,** page 419 (**A.M.** 1952). [66]

ALLWOODII ALPINUS 'WINK.' (Raised, introduced and sent by Messrs. Allwood Bros., Ltd.) **A.M.** June 16, 1953.—Described R.H.S. JOURNAL **77,** page 419 (**H.C.** 1952). [1]

ALLWOODII 'EDWARD.' (Raised, introduced and sent by Messrs. Allwood Bros., Ltd.) **A.M.** June 26, 1953.—Described R.H.S. JOURNAL **76,** page 417 (**H.C.** 1952). [74]

ALLWOODII 'ISOBEL.' (Raised, introduced and sent by Messrs. Allwood Bros., Ltd.) **A.M.** June 26, 1953.—Described R.H.S. JOURNAL **75,** page 30 (**H.C.** 1949). [39]

LANCING SUPREME. (Raised, introduced and sent by Messrs. Lindabruce Nurseries, Ltd., Freshbrook Road, Lancing, Sussex.) **A.M.**

June 16, 1953.—Plant vigorous, spreading habit, free flowering, 12 inches high; flower stems 12 inches long, slender and rigid. Flower 2¼ inches diameter, of very good form, slightly scented; petals broad with edges very slightly serrated, a very clear delicate shade of pink near Venetian Pink (H.C.C. 420) lightly zoned Porcelain Rose (H.C.C. 620). [82]

ALLWOODII 'JULIA.' (Raised, introduced and sent by Messrs. Allwood Bros., Ltd.) **H.C.** June 16, 1953.—Plant vigorous, bushy habit, free-flowering, 16 inches high; flower stems 13 inches long, stout, rigid. Flowers 2½ inches diameter, centre tufted; petals medium width with edges fringed, cut and slightly incurving, white ground heavily speckled Solferino Purple (H.C.C. 26/2). [32]

ALLWOODII 'PATIENCE.' (Raised, introduced and sent by Messrs. Allwood Bros., Ltd.) **H.C.** June 16, 1953.—Plant vigorous, bushy erect habit, very free flowering, 14 inches high; flower stems 12 inches long, slender, rigid. Flowers 2 inches diameter, good form, scented; petals broad slightly serrated, white ground laced Magenta Rose (H.C.C. 027) zoned Ruby Red (H.C.C. 827). [83]

ALLWOODII 'PRUDENCE.' (Raised, introduced and sent by Messrs. Allwood Bros., Ltd.) **H.C.** June 26, 1953.—Plant vigorous, bushy erect habit, very free flowering, 16 inches high; flower stems 14 inches long, slender, rigid. Flowers 2 inches diameter, good form, slightly scented; petals broad, slightly serrated, Rhodamine Pink (H.C.C. 527/3) ground laced and zoned Ruby Red (H.C.C. 827/1). [85]

ALLWOODII 'VERA.' (Raised, introduced and sent by Messrs. Allwood Bros., Ltd.) **H.C.** June 26, 1953.—Plant vigorous, spreading habit, free flowering, 10 inches high; flower stems 8 inches long, stout, rigid. Flowers 2⅛ inches diameter, good form, slightly scented; petals, broad, serrated, Porcelain Rose (H.C.C. 620/1) fading at edges to Porcelain Rose (H.C.C. 620/3) zoned Blood Red (H.C.C. 820/1). [60]

GERTRUDE ELLIS. (Raised, introduced and sent by Messrs. A. V. Ellis & Son, 105 Tenter Lane, Warmsworth, Doncaster, Yorks.) **H.C.** June 26, 1953.—Plant vigorous, bushy to slightly straggling habit, free flowering, 16 inches high; flower stems 12 inches long, stout, very rigid. Flowers 2 inches diameter, good form; petals broad, serrated, a soft bright shade of pink near Phlox Pink (H.C.C. 625/1) with a small zone of Rose Red (H.C.C. 724). [59]

LANCING LASS. (Raised, introduced and sent by Messrs. Lindabruce Nurseries, Ltd.) **H.C.** June 26, 1953.—Plant vigorous, bushy habit, free flowering, 18 inches high; flower stems 12–14 inches long, stout, rigid. Flowers 2¼ inches diameter, good form; petals broad slightly serrated, a very delicate clear shade of Rhodamine Pink (H.C.C. 527/1) lightly zoned Rhodamine Pink (H.C.C. 527). [78]

SHOW EXCELLENCE. (Raised, introduced and sent by Messrs. Allwood Bros., Ltd.) **H.C.** June 26, 1953.—Plant vigorous, bushy and erect habit, free flowering, 14 inches high; flower stems 10 inches long, medium thickness, rigid. Flowers 2 inches diameter, good form; petals very broad, slightly cut, a delicate pink near Rose Pink (H.C.C. 427/2) zoned China Rose (H.C.C. 024). [57]

BEAUTIFUL. (Raised, introduced and sent by S. J. Rudge, Esq., 2 Gills Lane, Radlett, Herts.) **C.** June 16, 1953.—Plant vigorous, bushy erect habit, very free flowering, 12 inches high; flower stems 10 inches long, slender,

rigid. Flowers 2 inches diameter, good form, petals broad, deeply serrated, a deep velvety shade near Rose Opal (H.C.C. 022) zoned Chrysanthemum Crimson (H.C.C. 824). [86]

GERTRUDE TAYLOR. (Sent by G. M. Taylor, Esq., Links Cottage, Longniddry, East Lothian, Scotland.) **C.** June 26, 1953.—Plant fairly vigorous, erect and bushy habit, free flowering, 19 inches high; flower stems 15 inches long, stout, very rigid. Flowers $1\frac{4}{5}$ inch diameter, good form, scented; petals broad, serrated, Amaranth Rose (H.C.C. 530/2) laced Cyclamen Purple (H.C.C. 30/1) zoned Dianthus Purple (H.C.C. 730) lacing fades on outer petals. [55]

ICE QUEEN. (Raised, introduced and sent by Messrs. Allwood Bros., Ltd.) **C.** June 26, 1953.—Plant vigorous, compact and bushy habit, free flowering, 14 inches high; flower stems 12 inches long, slender, rigid. Flowers $1\frac{1}{2}$ inch diameter, good form, scented, petals broad, fringed, a good clean white with a very small dot at base of petal of Tyrian Rose (H.C.C. 24/1). [11]

BOOK NOTES

"A Gardening Notebook for the Tropics." By A. V. and V. L. Gibbard. 184 pp. (Longmans, Green and Co.) 6*s*.

This book is more of a gardening notebook than a complete review of tropical gardening. The authors write from practical experience in S. Nigeria, though many of their remarks would be relevant elsewhere in the tropics, particularly the wet tropics.

After some general chapters, there are 34 pages on vegetables, and 35 pages on ornamental gardening, including a list of hedge shrubs and sections on Climbers and Creepers, and on Flowering Trees, with plants alphabetically arranged. Other sections include Fruits, Lawns, Seeds, Rock Gardens, Roses, Diseases and Pests, and Garden Tools.

Minor errors include "Gamboge," a product from a *Garcinia*, for *Thevetia*, and *Plumbago capensis*, *P. zeylanica* and *P. rosea* being classed as *varieties*. The book, however, is useful, compact and reasonable in cost, and should be useful for beginners, and for those hoping to begin gardening in the tropics.

F. R. IRVINE

"Wild Flowers of the Cape of Good Hope." Janda Press, Cape Town. English Agent: The Folio Society, 10 Ryder Street, London, S.W.1. 5 guineas.

The portfolio contains four magnificent drawings by Miss Ethel Dixie reproduced folio size in colour collotype by the Chiswick Press. As might be expected the quality of the reproduction is very high indeed. The plants chosen for this folio are *Disa uniflora*, the scarlet Orchid and one of the most celebrated of all the South African wild flowers, *Protea pityphylla*, *Antholyza ringens* and *Gladiolus ornatus*, a most beautiful and delicate pink-flowered species which would indeed be a welcome addition to the Gladioli cultivated in this country. Miss Dixie was born in 1876 but we are told that she still lives and occasionally works around Cape Town. She will be chiefly remembered as the illustrator of Dr. Marloth's *Flora of South Africa*, but these plates have been chosen from three albums of flower studies which she made some fifty years ago. Her drawings show an unusual sensitivity and feeling for the texture of the flowers and foliage and the reproduction of further studies from the albums will undoubtedly be welcome. Each plate contains on the back some short notes by Professor R. H. Compton.

PATRICK M. SYNGE

ORDERS FOR BOOKS

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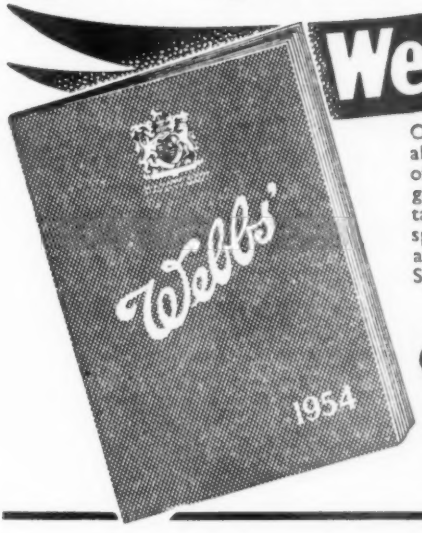

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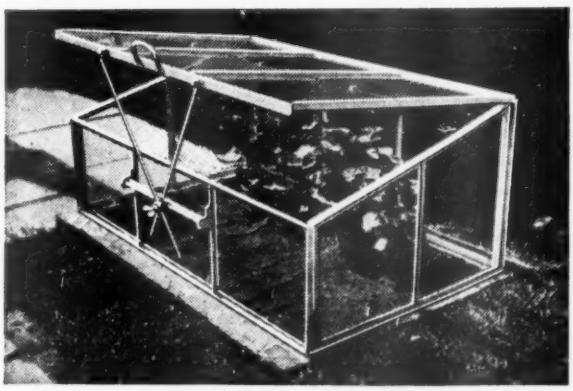

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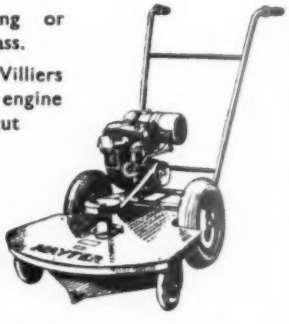

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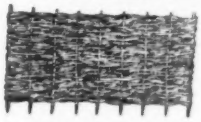

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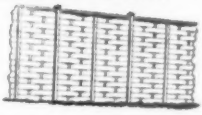

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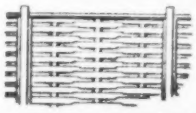

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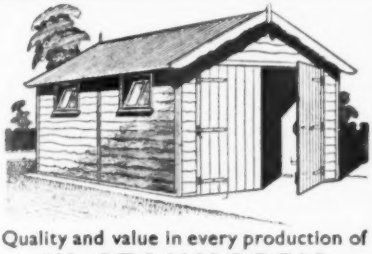

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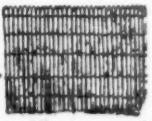

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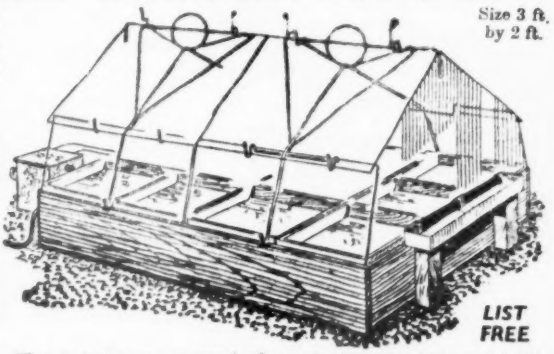

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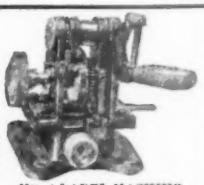

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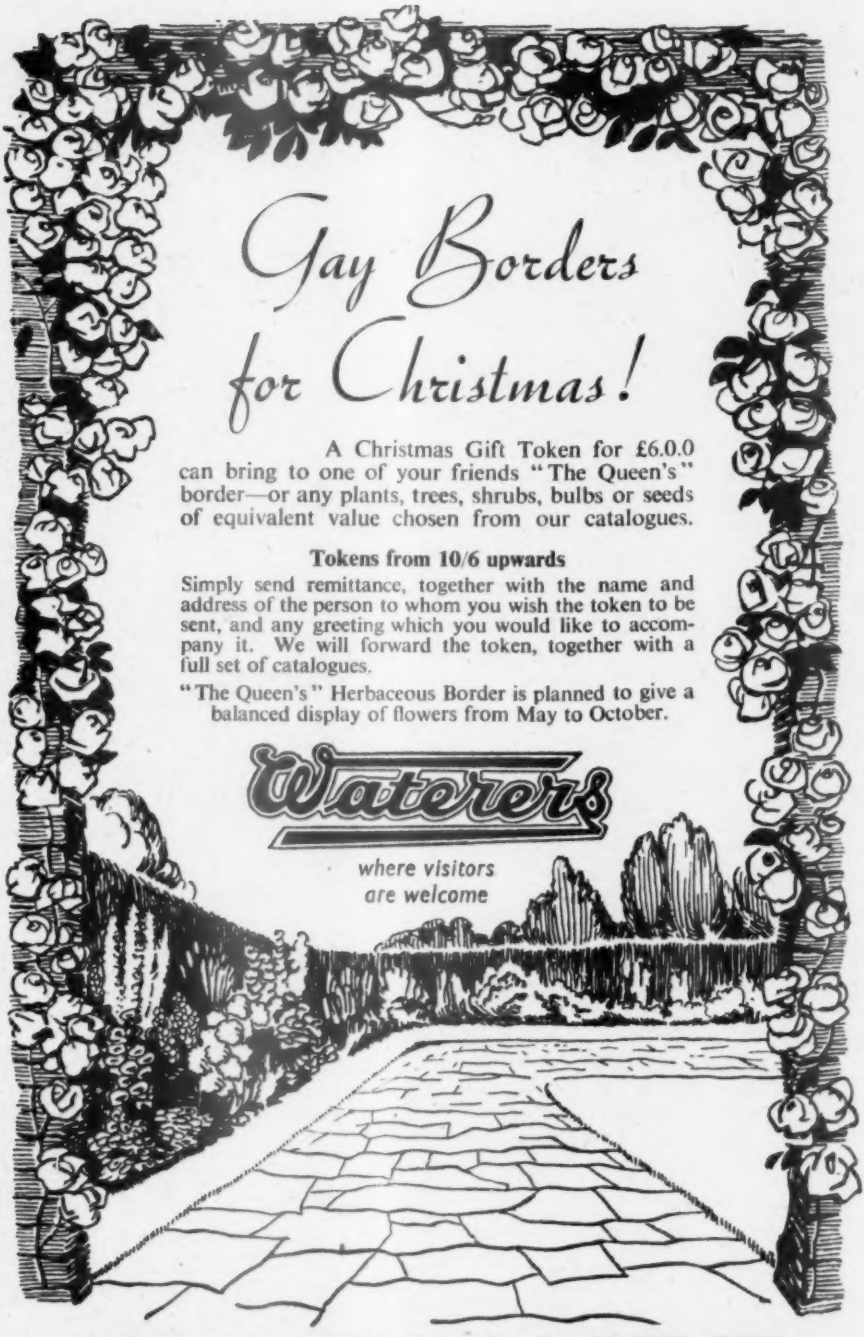

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